

33

HARLAND & WOLFF LTD.
BELFAST

No. 3 1078-1081

TITLE: Steel Deck

DATE APPROVED: 18. 4. 40

RETAIN

Abt 1158, 1159, 1164

1079 Belfast Report No
1088 Belfast Report No
1080

13343 - Empire Spence
13221 - Dundale

13381 Empire Chapman

13305 Empire Fleetley

13456 Empire Beaulieu

1159

13570 Empire Industry

1164

13417 " Benefit

1189

13560 " Dravner.

W1122-0122

6/8511 en

RETAIN



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Lloyd's Register
Foundation

18 APR 1940

N^{os} 1078-9-80-1 & 1083^G.

PLAN OF STEEL DECKS.

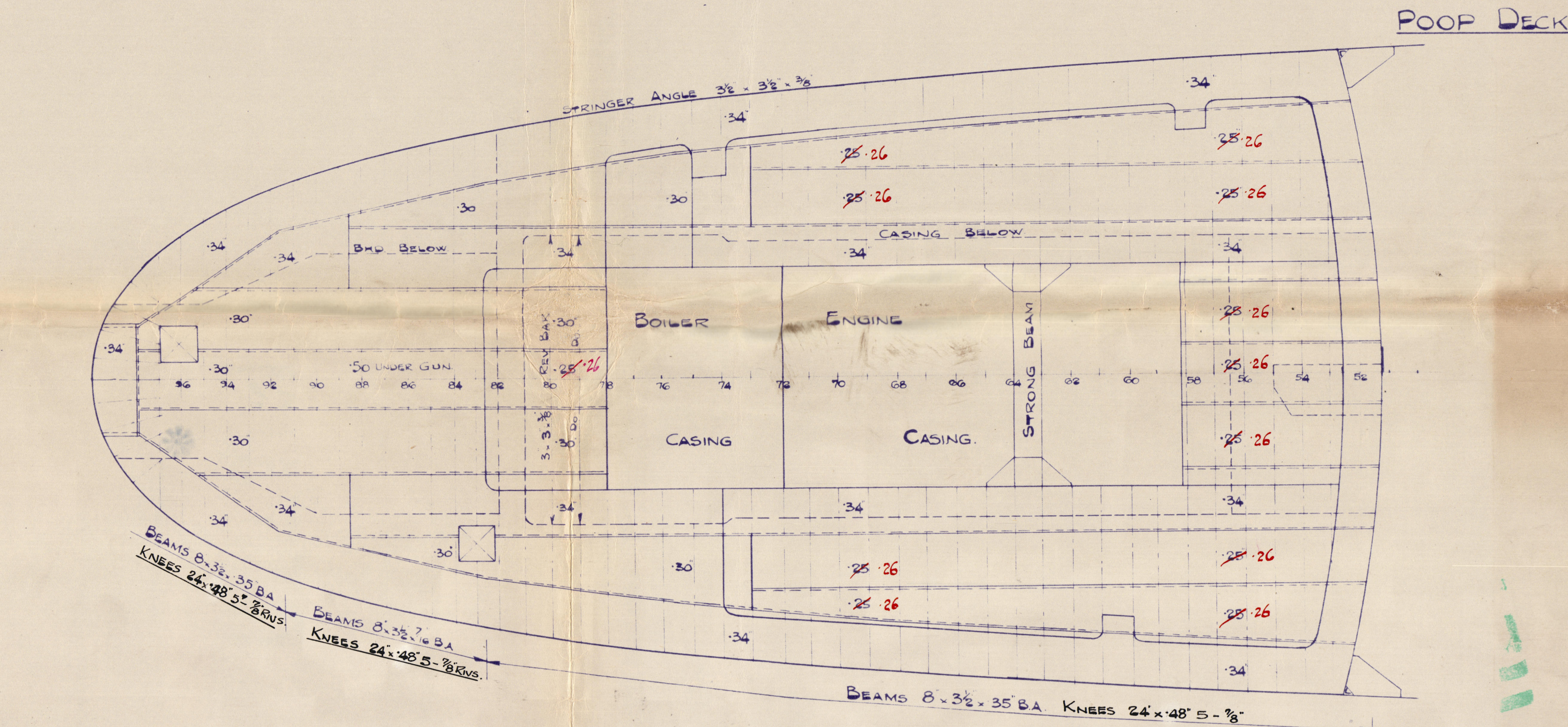
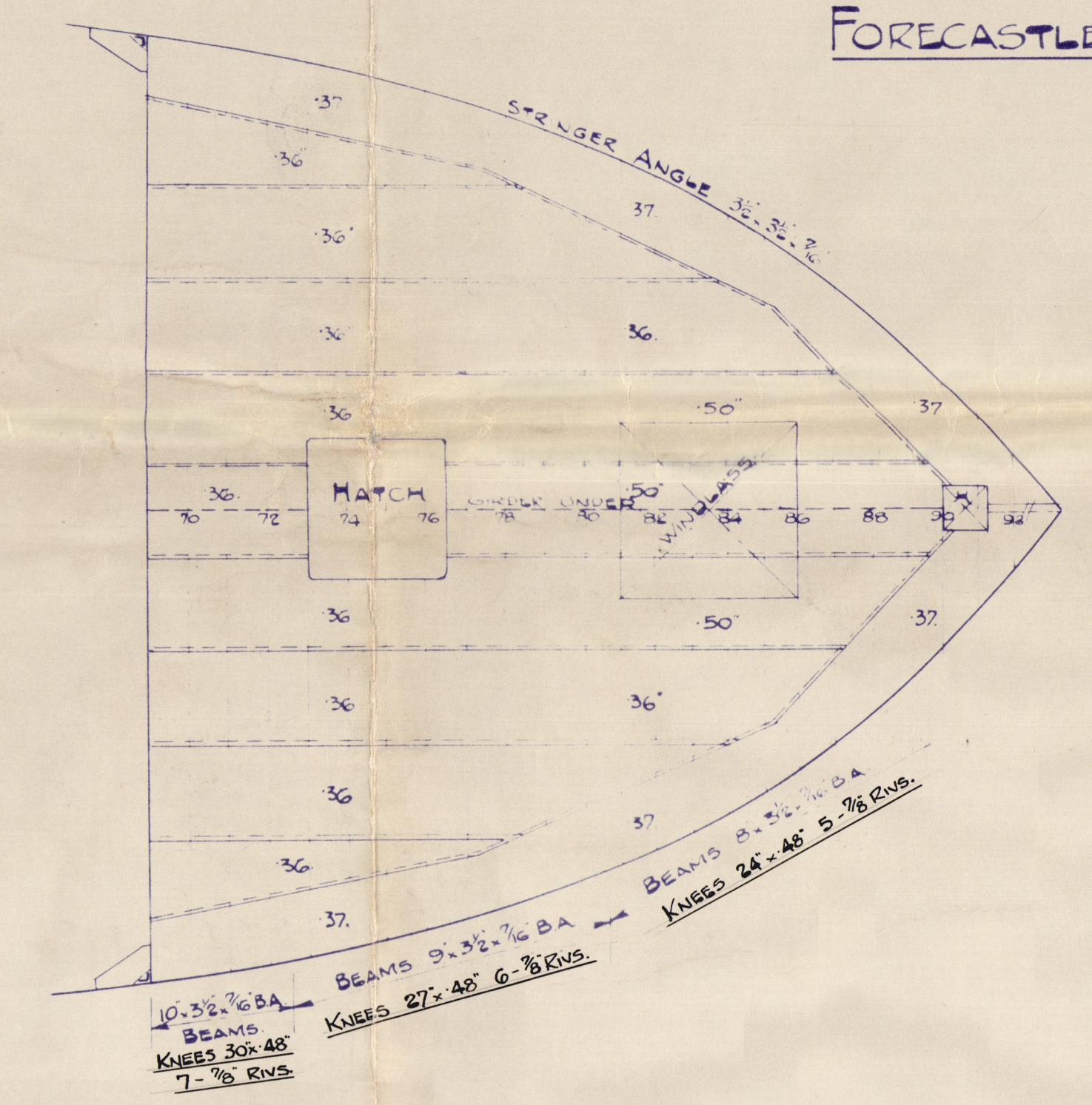
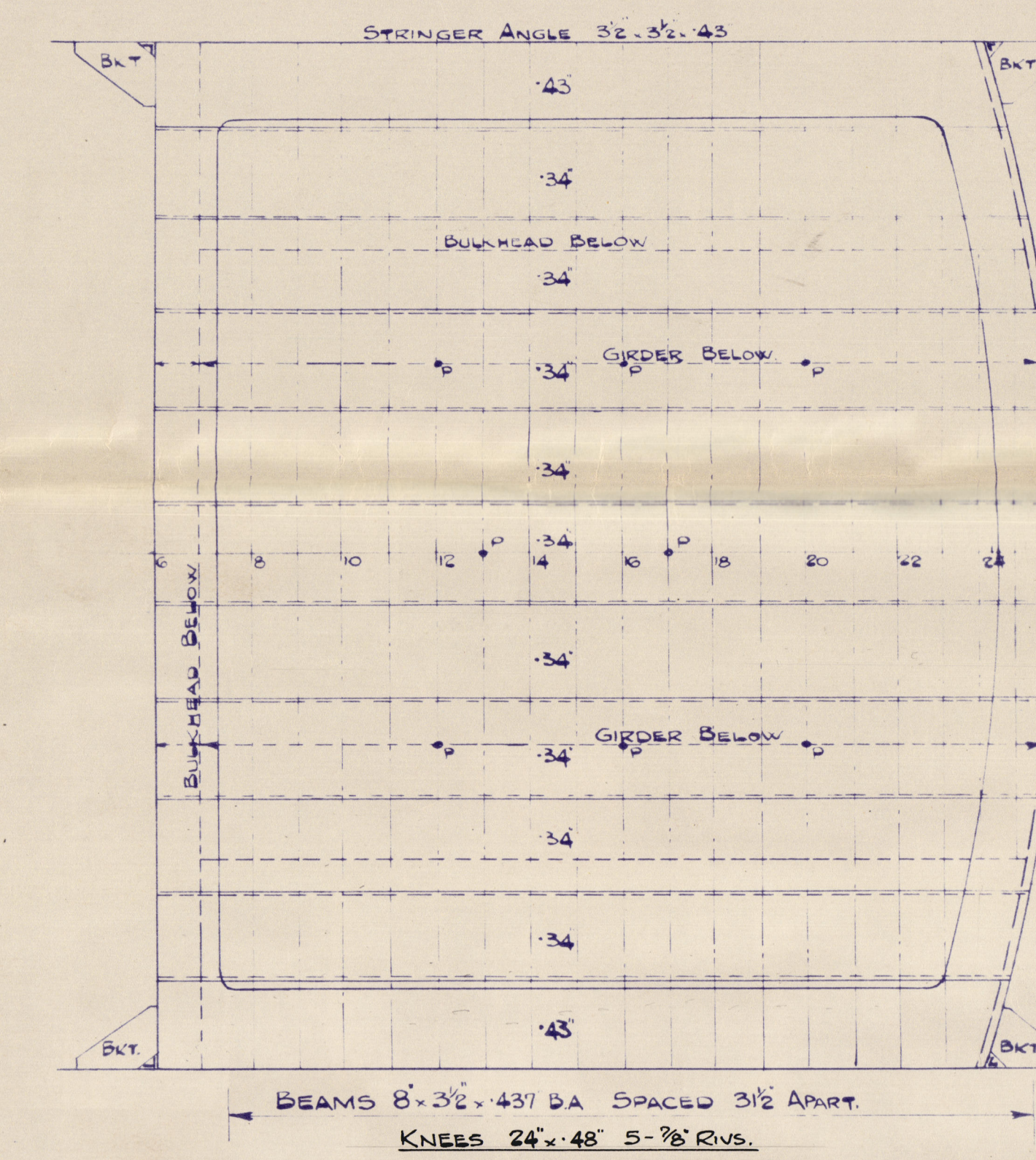
DIMENSIONS 460'-0" B.P. x 59'-0" MLD. x 34'-0" MLD.

SCALE 1/8" = 1 FOOT.

TO CLASS LLOYDS 100A.1 "CARRYING PETROLEUM IN BULK"

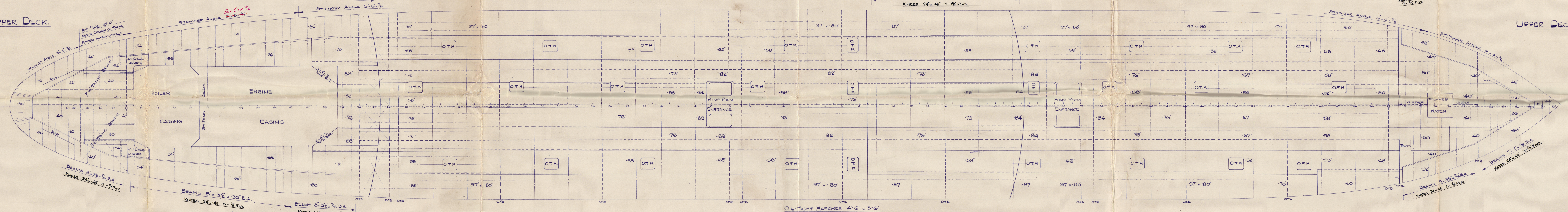
BRIDGE DECK.

FORECASTLE DECK.



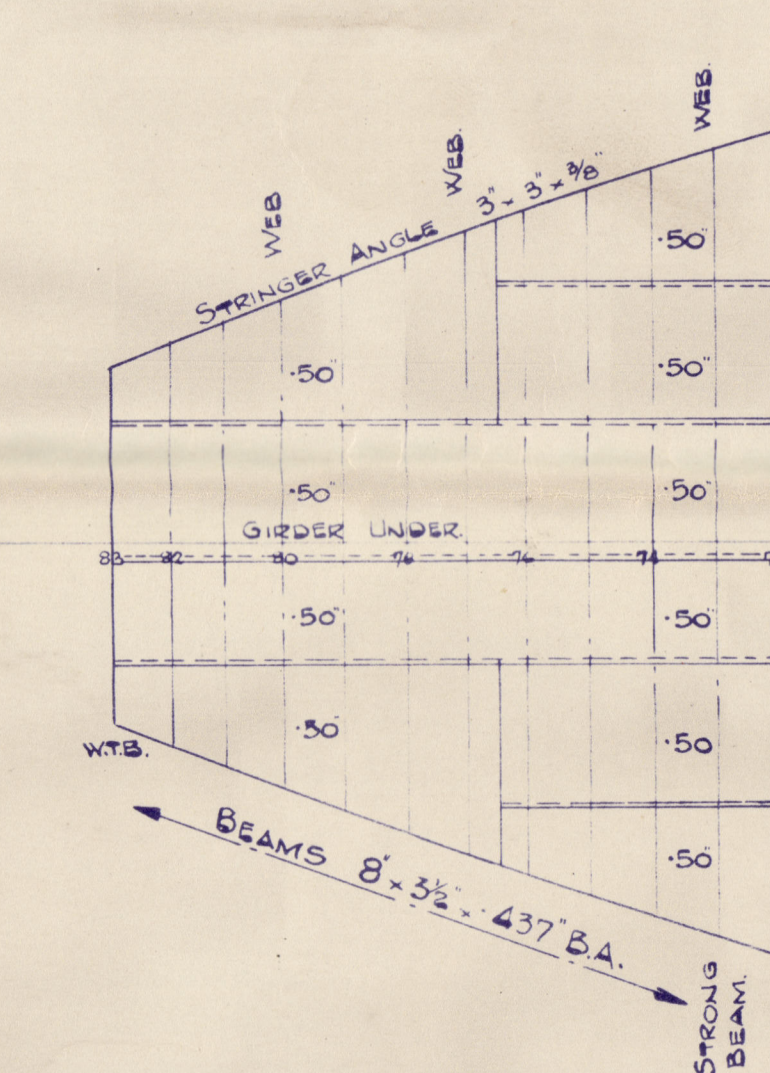
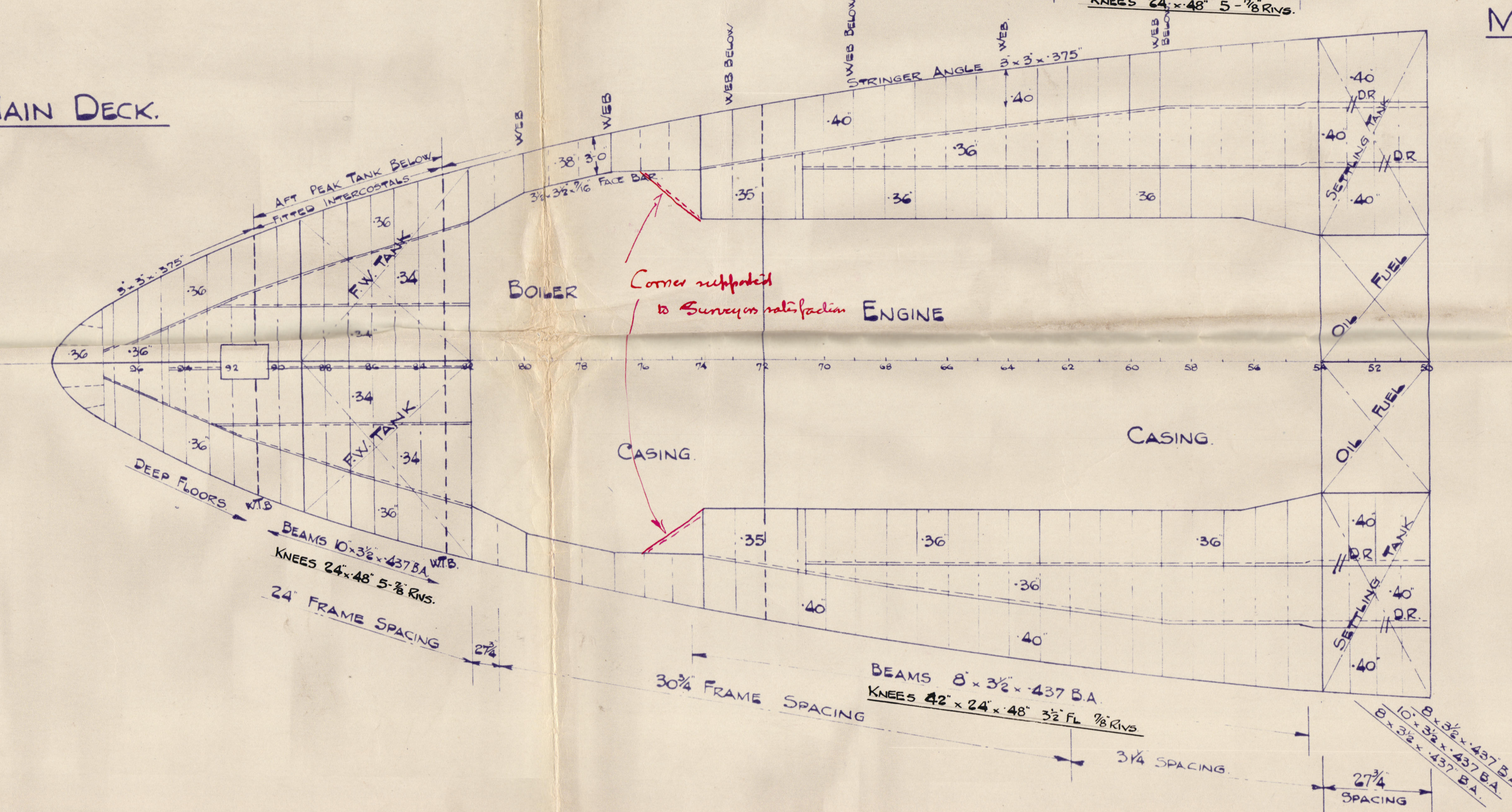
UPPER DECK.

UPPER DECK.

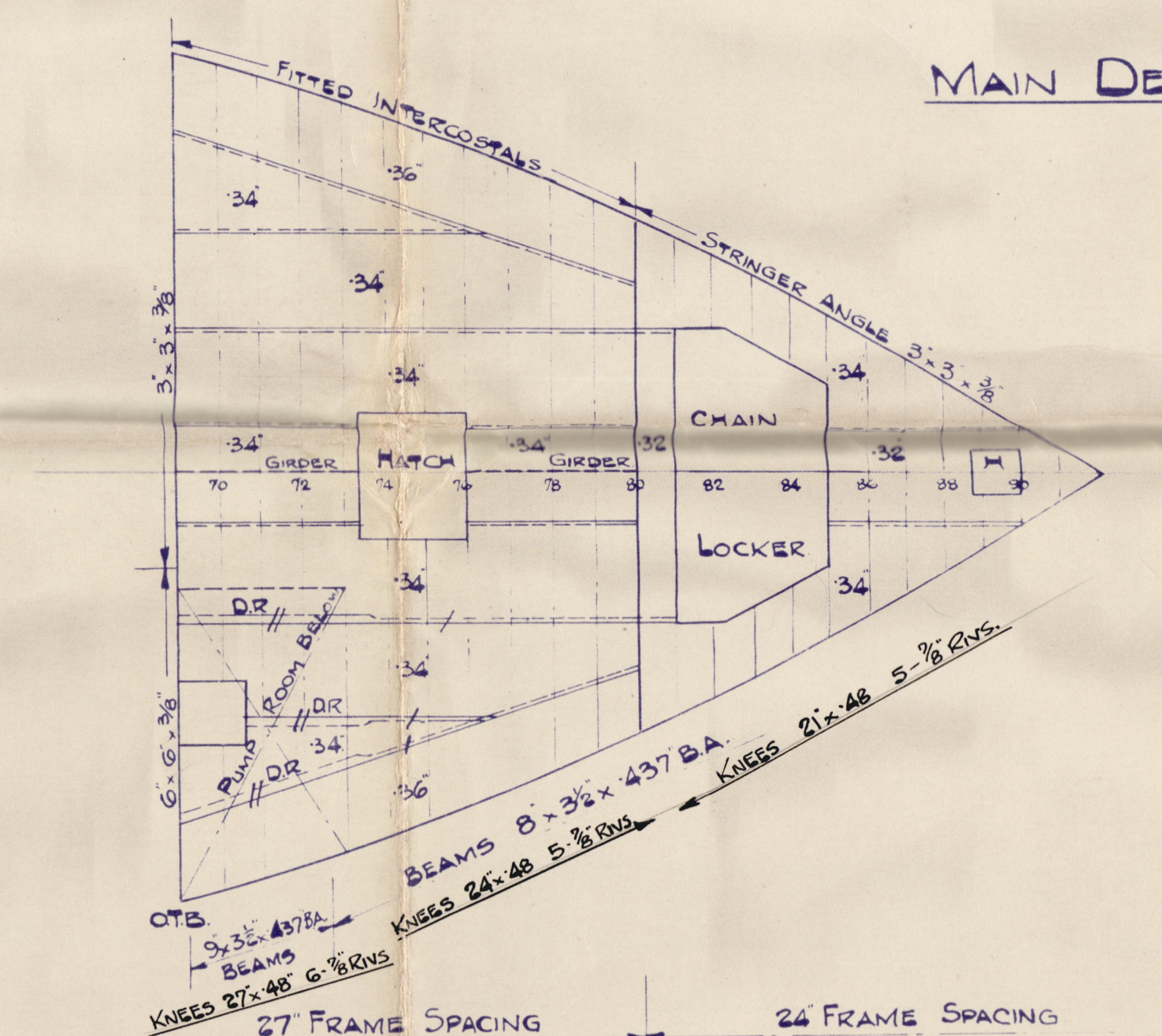


MAIN DECK.

MAIN DECK.



BOILER FLAT.



27 FRAME SPACING 24 FRAME SPACING

274

W.S. 321A


HARLAND & WOLFF LTD.
BELFAST

(6)

No. 1078-1081
TITLE Longitudinal & Transverse
Framing
DATE APPROVED 9. 11. 11

?
Scantlings in way of
oil tanks

1158 59 + 1164

Belfast Report No. 13221  Calc

1078	13281	Empire Chapman
1080	13305	Empire Fletcher
1081	13343	Empire Spencer
1079	13456	Empire Bonland
1158	13590	Empire Industry
1159	13417	" Benefit
1164	13560	" Draught
1189		

Scantlings in way of Oil Tanks and
Longitudinal Framing

PLANS TRANSFERRED
TO SISTER VESSEL

Gringdale I



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013627 - 013631 - 0115

Lloyd's Register
Foundation

9 APR 1944

Nos 1078-9-8-1 & 1083 G

SINGLE SCREW MOTOR TANKER

SCANTLINGS IN WAY OF OIL TANKS

DIMENSIONS:- 460'-0" B.P. x 59'-0" M.L.P. x 34'-0" M.D.

TO CLASS LLOYDS 100A1* "CARRYING PETROLEUM IN BULK"

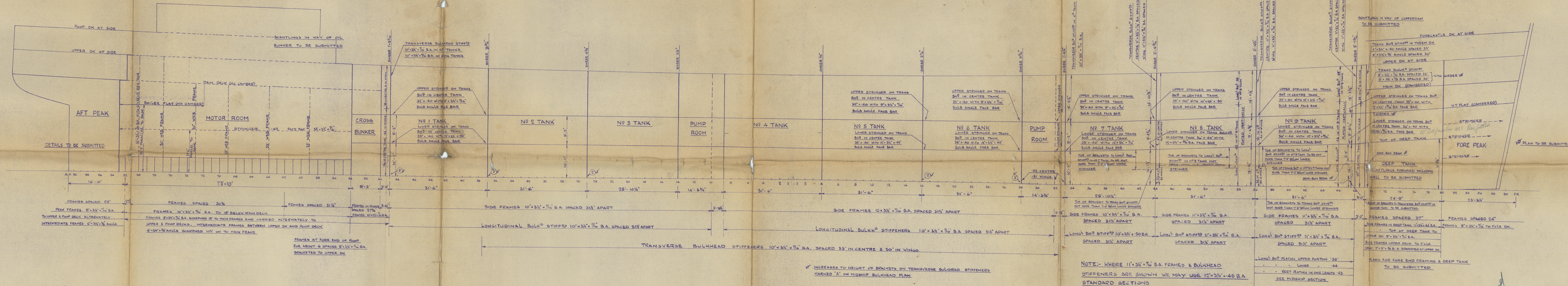
LONGITUDINAL FRAMING AT BOTTOM AND AT DECK

SCALE:- $\frac{1}{8}" = \text{ONE FOOT}$

ALL BULB ANGLE SECTIONS ARE N.B.S.

NOTE:- SCANTLINGS OF TRANSVERSE BULKHEAD STIFFENERS AND STRINGERS AND THICKNESS OF TRANSVERSE AND LONGITUDINAL BULKHEAD PLATING WHERE NOT OTHERWISE INDICATED TO BE AS APPROVED ON BULKHEAD PLAN AND MIDSHIP SECTION BULKHEAD BOUNDARY BARS AS PER RULE.

FEATHERS OF TRANSVERSE BULKHEAD STRINGER BRACKETS TO LONGITUDINAL BULKHEAD TO BE SUITABLY INCREASED WHEN STRINGERS ARE INCREASED CLEAR OF MIDSHIPS.



9. H. K.

013627-013631-0115

21

HARLAND & WOLFF LTD.
BELFAST

No. 1078-1081

TITLE *Ships Section*

9. 4. 40

1158, 1159, 1164
"DINSDALE"

W.S. 321 A

No 1078 *Beefast* Report No. *13221 - Dinsdale*

No 1080 " " *13281 Empire Chapman*

No. 1081 " " *13305 Empire T. Col. Day*

No. 1079 " " *13343 - Empire Spences*

No 1158 " " *13456 - Empire Bland*

No 1159 " " *13590 Empire Dunderberg*

No 1164 " " *13417 " Benefit*

No 1189 " " *13560 " Traveller*

PLANS TRANSFERRED
TO SISTER VESSEL

Irvingdale I



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013627-013631-0116

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11, 12
2.78
8.34

0116



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Nos 1078-9-80-1 & 1083G.
MIDSHIP SECTION.

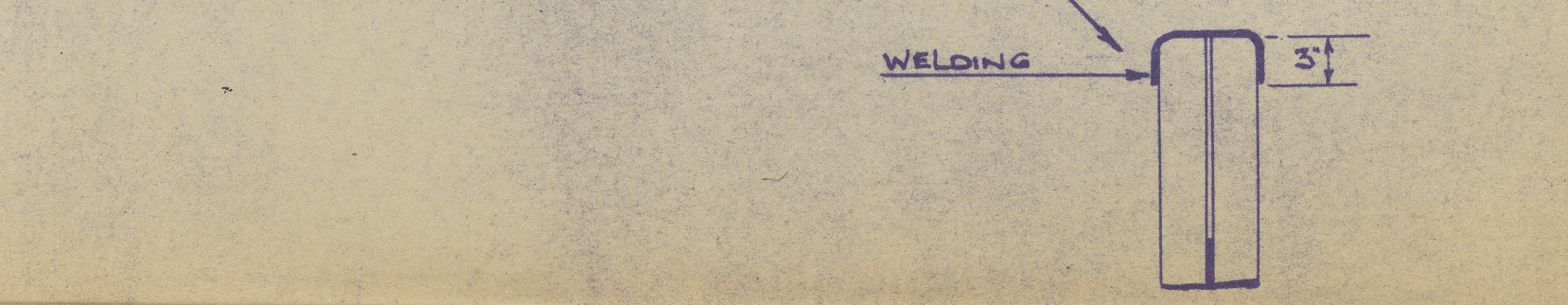
DIMENSIONS:- 460'-0" B.P. x 59'-0" BREADTH MLQ x 34'-0" DEPTH MLQ.

SCALE:- 1/2" = ONE FOOT.

9 APR 1940

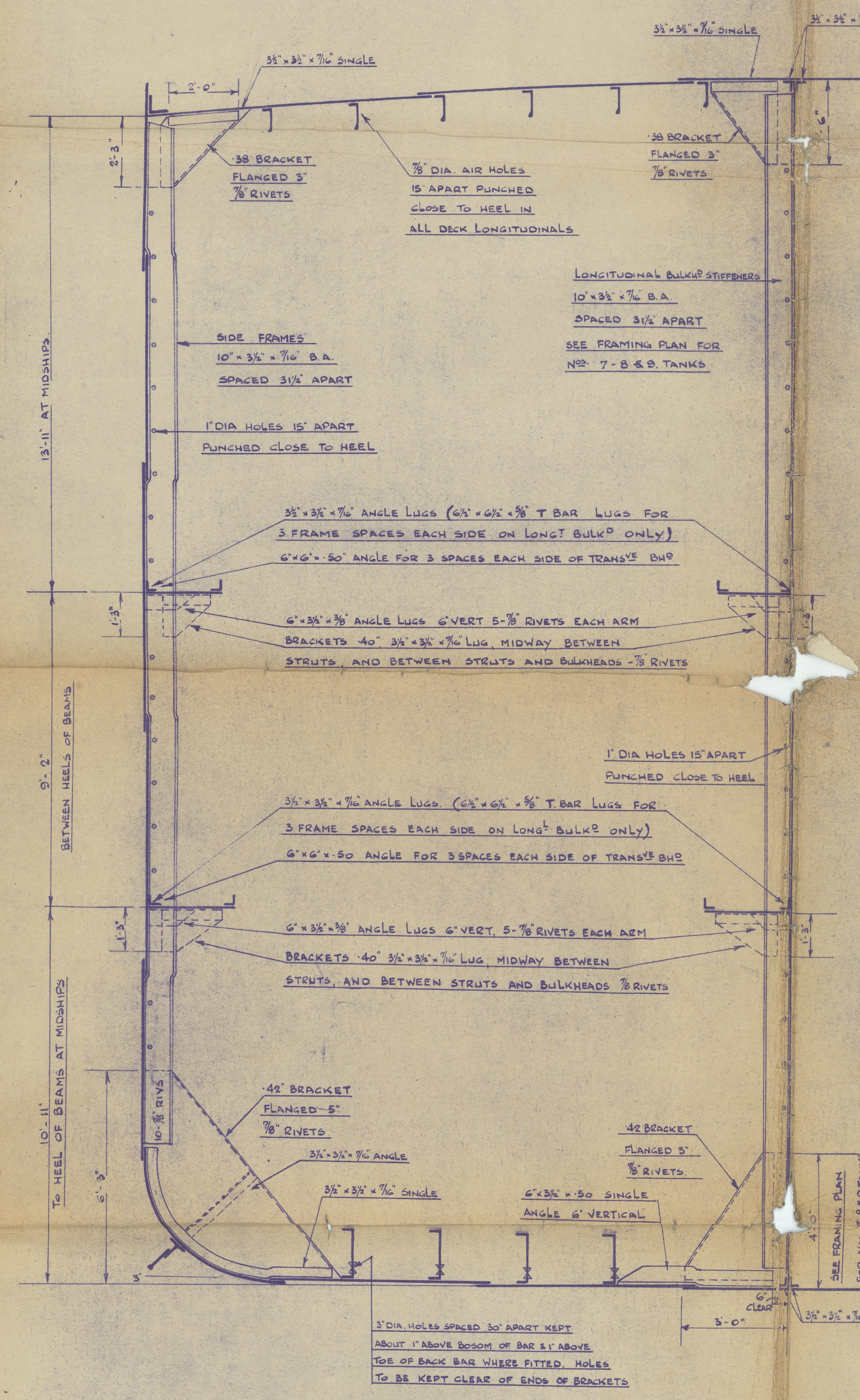
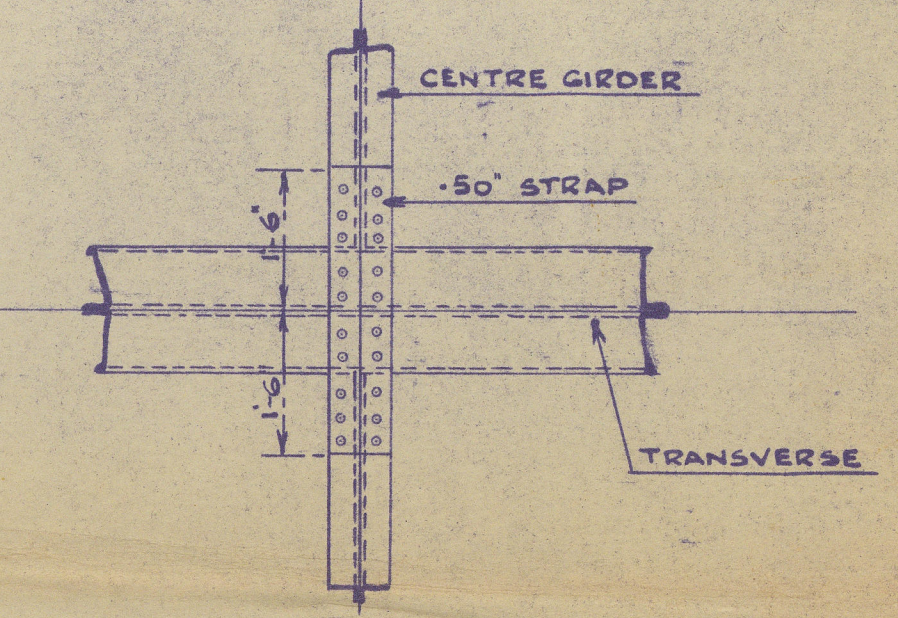
ALL ATTACHMENT ANGLES TO BULKHEADS TO BE HYDRAULICALLY
RIVETED ON THE GROUND PRIOR TO ERECTION.
NO PLATE BEAMS OR BUTTS TO BE ARRANGED IN WAY OF
THE CONNECTIONS OF THE TRANSVERSES & STRINGERS TO BULKHEADS.

IN CONNECTIONS MARKED THIS 'X' RIVET HOLES IN BOTH BARS & BULKHEAD
TO BE PUNCHED 1/4" SMALL AND CAREFULLY REAMERED OUT AFTER ASSEMBLY
CONNECTIONS TO BE THEN DISMANTLED AND SURFACES CLEANED AND ALL
BURRS REMOVED. ON DE-ASSEMBLY BOLT TO BE FITTED IN EVERY 3RD
HOLE, ALSO IN BOTH HOLES AT BOTH ENDS OF BARS AND ALL THOROUGHLY
HARDENED UP. END OF BARS ON FACE SIDE OF BULKHEADS TO BE
WELDED PRIOR TO RIVETING (SEE SKETCH).



DETAIL OF CENTRE GIRDER TRIPPING BRACKETS.

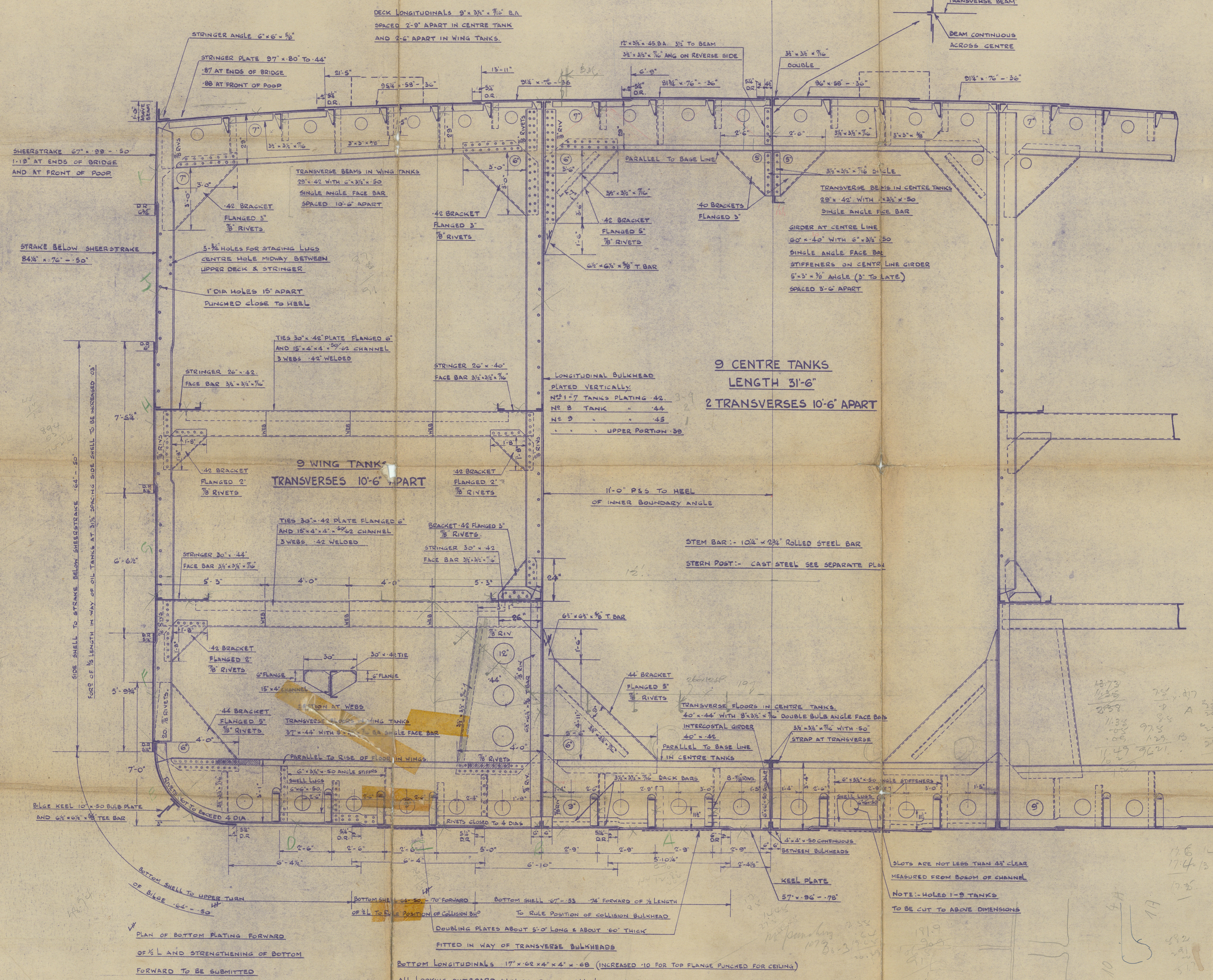
BRACKETS MIDWAY BETWEEN TRANSVERSES
& BETWEEN TRANSVERSES AND BULKHEADS
6" x 3/4" x 50" VERTICAL ANGLE STIFFENERS
FITTED TO INTERGOSTAL & GIRDER BETWEEN
BRACKETS & TRANSVERSES & BULKHEAD.



SECTION THROUGH WING TANKS
AT INTERMEDIATE FRAME

LLOYDS NUMERALS.
L x D 460'-0" x 34'-0" = 15640.
L x (B x D) 460'-0" (59'-0" x 34'-0") = 42780.
L/D 460/34 = 13.52.

TO CLASS LLOYDS 100A.1.
"CARRYING PETROLEUM IN BULK"
"LONGITUDINAL FRAMING AT BOTTOM & AT DECK."
ALL BULB ANGLES ARE TO NEW BRITISH STANDARD.
SCANTLINGS SHOWN APPLY AMIDSHIPS AND ARE
TO BE INCREASED FOR SHEER AS REQUIRED.
SCANTLINGS, INCLUDING SHELL, CLEAR OF CARGO.
OIL TANKS TO BE SPECIALLY CONSIDERED.



SECTION AT TRANSVERSES LOOKING AFT

- RIVETING.**
- BOTTOM SHELL BUTTS :- QUADRUPLE OVERLAPS TO TREBLE AT ENDS
 - SIDE SHELL BUTTS :- DOUBLE RIVETED FORE AND AFT.
 - SHELL LANDINGS :- DOUBLE RIVETED FORE AND AFT.
 - KEEL PLATE BUTTS :- QUADRUPLE OVERLAPS TO QUADRUPLE AT ENDS.
 - SHEER STRAKE BUTTS :- QUADRUPLE OVERLAPS FOR 1/2 LENGTH TO TREBLE AT ENDS WHERE NOT EXCEEDING .68"
 - STRAKE BELOW SHEER STRAKE :- QUADRUPLE OVERLAPS FOR 1/2 LENGTH TO TREBLE BUTTS. AT ENDS WHERE NOT EXCEEDING .68"
 - THICK PLATES AT BREAKS :- DOUBLE STRAPPED, TREBLE RIVETED.
 - UPPER DECK BUTTS :- QUADRUPLE OVERLAPS FOR 1/2 LENGTH TO TREBLE AT ENDS WHERE NOT EXCEEDING .68"
 - THICK UPPER DECK STRINGER PLATES AT BREAKS :- QUADRUPLE OVERLAPS.
 - UPPER DECK BUTTS :- QUADRUPLE OVERLAPS FOR 1/2 LENGTH WHERE ABOVE .68"
 - TO SINGLE
 - TO TREBLE
 - TO NOT EXCEEDING .68" AT ENDS.
 - TO NOT LESS THAN DOUBLE OVERLAPS IN WAY OF OIL.
 - LANDINGS :- DOUBLE RIVETED IN WAY OF OIL, SINGLE RIVETED ELSEWHERE.
 - OILTIGHT BULKHEAD BUTTS AND LANDINGS :- DOUBLE RIVETED.
- RIVET SPACING.**
- RIVETS IN BOTTOM LONGITUDINALS TO SHELL :- 3/4" DIAS. APART FOR 11 RIVETS EACH
 - SIDE OF TRANSVERSES AND BULKHEADS 4/4" DIAS. THROUGHOUT IN NOS 8 & 9 TANKS 6 DIAS. ELSEWHERE (NOS 8 & 9 TANKS SEE FRAMING PLAN.)
 - RIVETS IN DECK LONGITUDINALS :- 6 DIAS. APART
 - SIDE FRAMES TO SHELL IN WAY OF OIL :- 5/8" DIAS. APART.
 - FRAMES TO SHELL CLEAR OF OIL AND PEAKS :- 7 DIAS. WHERE UNDER 50% - 6 1/2 DIAS. WHERE OVER 50%
 - IN PEAKS AND DEEP TANKS :- 5/8" DIAS. APART.
 - FRAMES TO FLOORS & REVERSE FRAMES, CLEAR OF OIL :- 7 DIAS. APART.
 - FACE BARS TO FLOORS IN WAY OF OIL :- 6 DIAS. APART.
 - OILTIGHT BULKHEAD STIFFENERS :- 5/8" DIAS. APART.
 - SIDE STRINGER ANGLES TO SHELL :- NOT MORE THAN 4 1/2 DIAS. APART IN EACH ROW.
 - ATTACHMENT TO O.T. BULKHEADS :- NOT MORE THAN 4 1/2 DIAS. APART IN EACH ROW.
 - FRAMES AND FLOORS IN AFTER PEAK :- 5 DIAS. APART.
 - FRAMES TO FLOORS & FRAMES TO SHELL ON BOTTOM FORWARD OF 1/2 L FOR 1/2 L 5/8" DIAS. APART.
 - SHELL BEAMS IN WAY OF OIL :- 4 DIAS. APART (CLEAR OF OIL AS PER RULES) 5 DIAS. APART OF UPPER DECK BEAMS & BUTTS IN WAY OF OIL :- 4 DIAS. APART WHERE EXCEEDING 50"
 - 3/2 DIAS. APART WHERE THICKNESS IS .50" AND UNDER.
 - BUTTS OF KEEL, SHEER STRAKE (QUADRUPLE BUTTS) :- 4 1/2 DIAS. APART.
 - STRAKE BELOW SHEER STRAKE (QUADRUPLE BUTTS) :- 4 DIAS. APART.
 - UPPER DECK STRINGER (TREBLE BUTTS) :- 3 1/2 DIAS. APART.
 - RIVETS IN OILTIGHT BULKHEAD FRAMES & SURROUND ANGLES :- 5 DIAS. APART.
 - TRANSVERSE BEAMS TO DECK IN WAY OF OIL :- 5 DIAS. APART.
 - TRANSVERSE FLOORS TO SHELL IN WAY OF LONGITUDINAL DRAWING :- 5 DIAS. APART WHERE BACK BARS FITTED & DIAS. APART WHERE INDICATED ON SECTION; 4 1/2 DIAS. ELSEWHERE. (BOTH FLANGES)
 - FACE BARS ON TRANSVERSE DECK BEAMS :- 6 DIAS. APART.
 - BRACKET ATTACHMENT WHERE NOT SPECIALLY INDICATED TO BE NOT MORE THAN 5 DIAS. APART.

- 3 BOWER ANCHORS** 1500 CWTs EACH STOCKLESS
1 STEAM ANCHOR 25 CWTs (EX STOCK)
240 FATHOMS 2 1/2" STD LINK CHAIN CABLE
TWO SPARE ANCHOR AND TWO CABLE SHACKLES
ONE BOX PINS AND PUNCHES AND ONE SHACKLE PUNCH
120 FATHOMS 5" (1/16) CIRC. WIRE STREAM
120 5/4" (1/16) TOW LINE
2 @ 100 FATHOMS 2 1/2" (1/16) HAWSEERS
2 @ 100 2 1/4" (1/16) WARPS
ALL WIRES TO BE ON REELS. ALL REELS TO TAKE WIRES 1/2" ABOVE
SIZES SUPPLIED. REELS FOR LARGE WIRES DOUBLE PURCHASE.

59

HARLAND & WOLFF LTD.
BELFAST

No. 1159.

TITLE Midship Section as built.

DATE APPROVED.....

Empire Industry Belfast Rpt No 13590

002602-002610-0254



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EMPIRE INDUSTRY No 1159.
AS FITTED
MIDSHIP SECTION.

DIMENSIONS:- 460'-0" B.P. x 59'-0" BREADTH M.D. x 34'-0" DEPTH M.D.
SCALE:- 1/2" = ONE FOOT.

TO CLASS LLOYDS 100A.1.
CARRYING PETROLEUM IN BULK.
LONGITUDINAL FRAMING AT BOTTOM & AT DECK.
ALL BULB ANGLES ARE TO NEW BRITISH STANDARD
SCANTLINGS SHOWN APPLY AMIDSHIPS AND ARE
TO BE INCREASED FOR SHEER AS REQUIRED.
SCANTLINGS INCLUDING SHELL CLEAR OF CARGO.
OIL TANKS TO BE SPECIALLY CONSIDERED.

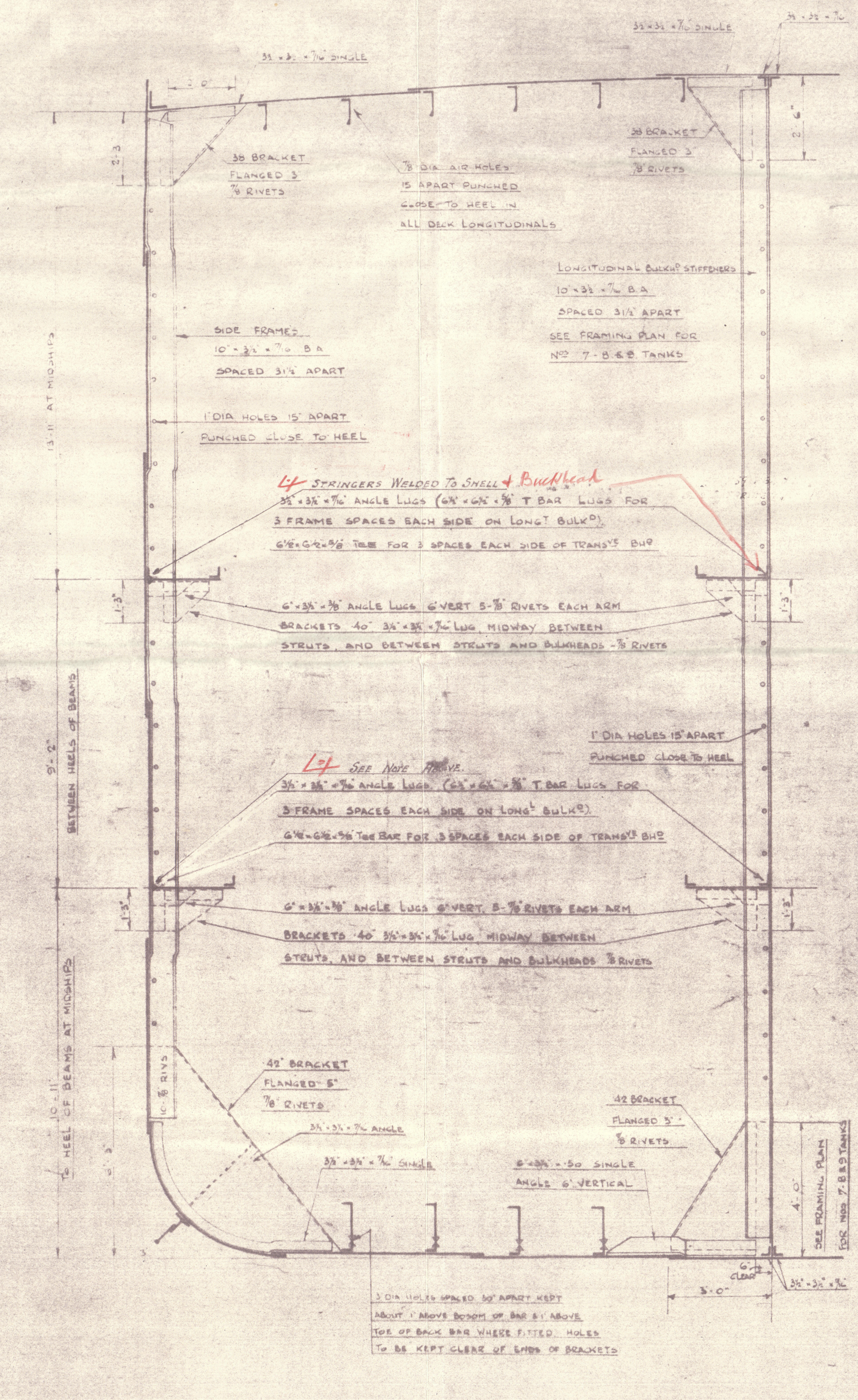
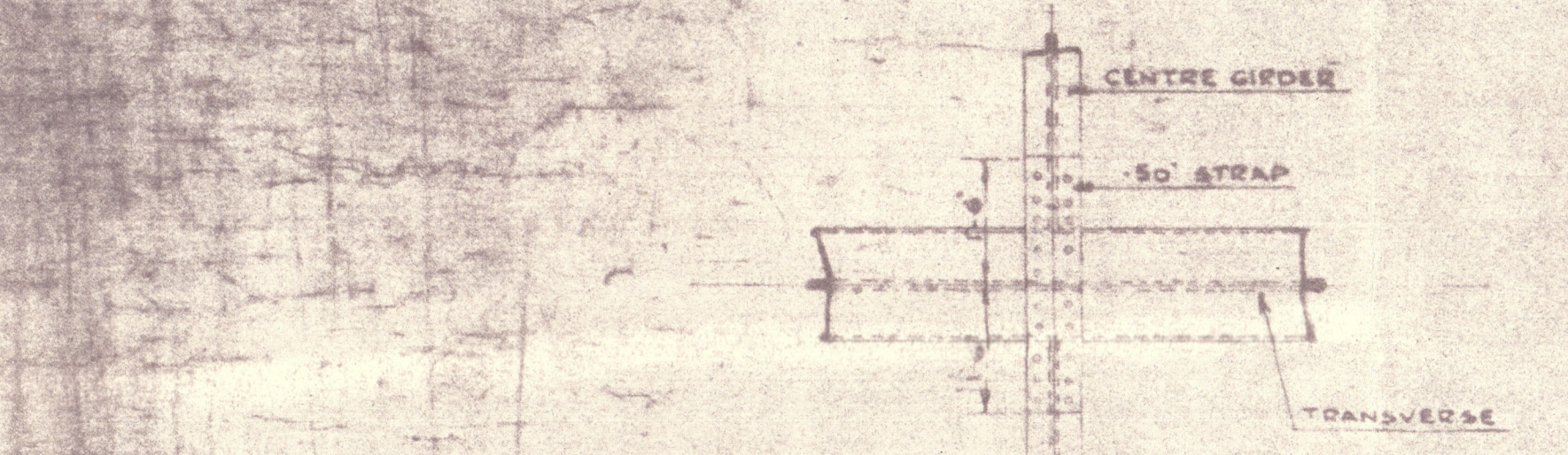
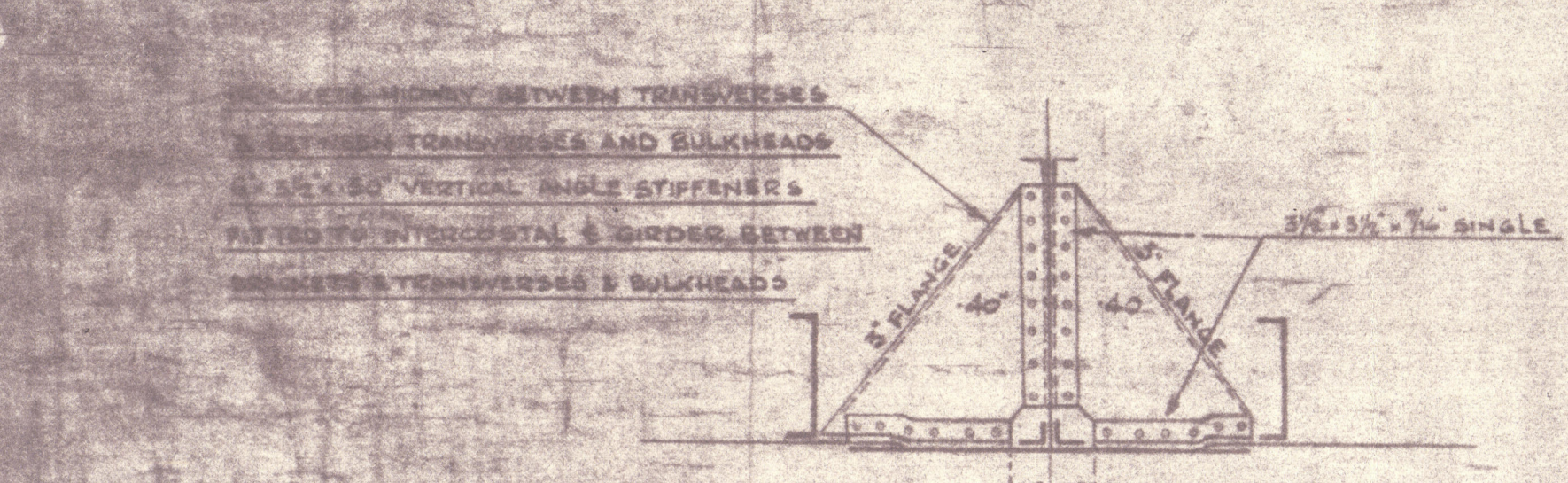
LLOYDS NUMERALS.
L.O. 460.0 x 34.0 = 15640.
L x (B.D.) 460.0 (59.0 x 34.0) = 42780.
L.O. 460.34 = 13.52.

ALL ATTACHMENT ANGLES TO BULKHEADS TO BE HYDRAULICALLY
RIVETED ON THE GROUND PRIOR TO ERECTION
NO PLATE BEAMS OR BUTTS TO BE ACCORDING IN WAY OF
THE CONNECTIONS OF THE TRANSVERSES & STRINGERS TO BULKHEADS

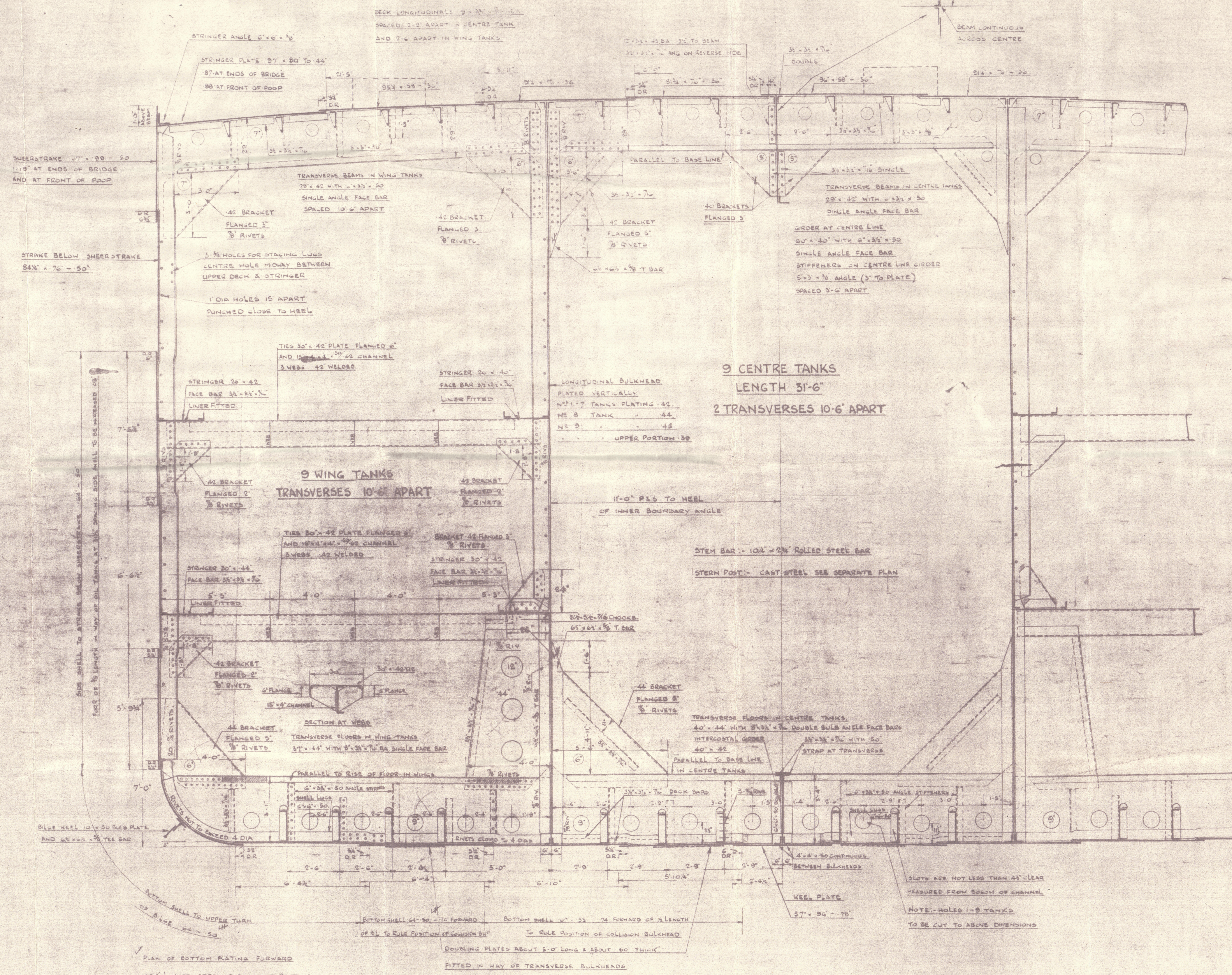
IN CONNECTIONS MARKED THIS V RIVET HOLES IN BOTH BARS & BULKHEAD
TO BE RIVETED TO SHELL AND CAREFULLY GROUND OUT AFTER ASSEMBLY
CONNECTIONS TO BE THEN DIMENSIONED AND GROUND CLEAN AND ALL
WELDED JOINTS ON DE-ASSEMBLY BOLT TO BE FITTED IN EVERY 3RD
HOLE ALSO IN BOTH HOLES AT BOTH ENDS OF BARS AND ALL THOROUGHLY
GROUNDED TO END OF BARS ON FACE SIDE OF BULKHEADS TO BE
WELDED PER TO RIVETING (SEE SKETCH)



DETAIL OF CENTRE GIRDER TRIPPING BRACKETS.



SECTION THROUGH WING TANKS
AT INTERMEDIATE FRAME



SECTION AT TRANSVERSES LOOKING AFT

RIVETING.
BOTTOM SHELL BUTTS - QUADRUPE OVERLAPS TO TORSLE AT ENDS
SIDE SHELL BUTTS - DOUBLE RIVETED FORE AND AFT
SHELL LANDINGS - DOUBLE RIVETED FORE AND AFT
KEEL PLATE BUTTS - QUADRUPE OVERLAPS TO QUADRUPE AT ENDS
SHEERSTRAKE BUTTS - QUADRUPE OVERLAPS FOR 1/2 LENGTH TO TORSLE
AT ENDS WHERE NOT EXCEEDING 108"
STOWS BELOW SHEERSTRAKE - QUADRUPE OVERLAPS FOR 1/2 LENGTH TO TORSLE
BUTTS - AT ENDS WHERE NOT EXCEEDING 108"
THICK PLATES AT BEAMS - DOUBLE STRAPPED, TORSLE RIVETED
UPPER OF STOWS BUTTS - QUADRUPE OVERLAPS FOR 1/2 LENGTH TO TORSLE
AT ENDS WHERE NOT EXCEEDING 108"
THICK UPPER DE SHEERSTRAKE PLATES AT BEAMS - QUADRUPE OVERLAPS
UPPER DECK BUTTS - QUADRUPE OVERLAPS FOR 1/2 LENGTH ABOVE 108"
TO SHELL
LANDINGS - DOUBLE RIVETED IN WAY OF OIL, SINGLE RIVETED ELSEWHERE
OUTRIGT BULKHEAD BUTTS AND LANDINGS - DOUBLE RIVETED.

RIVET SPACING.
RIVETS IN BOTTOM LONGITUDINALS TO SHELL - 3/4" DIAS APART FOR 11 RIVETS EACH
SIDE OF TRANSVERSES AND BULKHEADS - 4/4" DIAS THROUGHOUT IN NEE
8 & 9 TANKS 6 DIAS ELSEWHERE (NO 8 & 9 TANKS SEE FRAMING PLAN)
RIVETS IN DECK LONGITUDINALS - 6 DIAS APART
SIDE FRAMES TO SHELL IN WAY OF OIL - 5/8" DIAS APART
FRAMES TO SHELL CLEAR OF OIL AND PEAKS - 7 DIAS WHERE UNDER 60" & 4 DIAS WHERE OVER 60"
IN PEAKS AND DEEP TANKS - 5/8" DIAS APART
FRAMES TO FLOORS & REVERSE FRAMES CLEAR OF OIL - 7 DIAS APART
FACE BARS TO FLOORS IN WAY OF OIL - 6 DIAS APART
OUTRIGT BULKHEAD STIFFENERS - 5/8" DIAS APART
SIDE STRINGER ANGLES TO SHELL - NOT MORE THAN 4 1/2 DIAS APART IN EACH ROW
ATTACHMENT TO ST BULKHEADS - NOT MORE THAN 4 DIAS APART EACH ROW
FRAMES AND FLOORS IN AFTER PEAK - 5 DIAS APART
FRAMES TO FLOORS & FRAMES TO SHELL ON BOTTOM FORWARD OF PL FOR 5/8" DIAS APART
SHELL SEAMS IN WAY OF OIL - 4 DIAS APART (CLEAR OF OIL AS PER RULES) 3/4 DIAS ELSEWHERE
UPPER DE BEAMS & BUTTS IN WAY OF OIL - 4 DIAS APART WHERE EXCEEDING 60"
3/4 DIAS APART WHERE THICKNESS IS 1/2" AND UNDER
BUTTS OF KEEL, SHEERSTRAKE, QUADRUPE BUTTS - 4/4" DIAS APART
STOWS BELOW SHEERSTRAKE QUADRUPE BUTTS - 4 DIAS APART
AND UPPER DE STRINGER TREBLE BUTTS - 5/8" DIAS APART
RIVETS IN OUTRIGT BULKHEAD FRAMES & SURROUND ANGLES - 5 DIAS APART
TRANSVERSE BEAMS TO DECK IN WAY OF OIL - 5 DIAS APART
TRANSVERSE FLOORS TO SHELL IN WAY OF LONGITUDINAL FRAMING - 5 DIAS APART WHERE
BACK BARS FITTED 4 DIAS APART WHERE INDICATED ON SECTION; 4 DIAS ELSEWHERE (BOTH PLATES)
STRINGER FACE BARS IN WAY OF OIL - 6 DIAS APART
FACE BARS ON TRANSVERSE DECK BEAMS - 5 DIAS APART
BRACKET ATTACHMENTS WHERE NOT SPECIALLY INDICATED TO BE NOT MORE THAN 5 DIAS APART

1159 AS 2.
3) LOWER ANCHORS - 75.10 CWT'S EACH STOCKLESS
1 STEAM ANCHOR - 22 CWT'S (EX STOCK)
220 FATHOMS 2 3/4" STUD LINK CHAIN CABLE
TWO SPARE ANCHOR AND TWO CABLE SHACKLES
ONE BOX PINS AND PUNCHES AND ONE SHACKLE PUNCH
150 FATHOMS 5" (1/16) CIRC. WIRE STREAM
126 5/8" (1/4) TOW LINE
2 @ 100 FATHOMS 2 1/4" (1/16) HAWSEERS
2 @ 100 2 1/4" (1/16) WARPS
ALL WIRES TO BE ON REELS. ALL REELS TO TAKE WIRES 1" ABOVE
WIRE SUPPLIED. REELS FOR LARGE WIRES DOUBLE PURCHASE.